1985 ASCB SUMMER RESEARCH CONFERENCE

ANALYTICAL APPROACHES FOR RECEPTOR BIOLOGY

August 25 - 29, 1985
Airlie House Conference Center
Airlie, Virginia

THE AMERICAN SOCIETY FOR CELL BIOLOGY is sponsoring a summer conference entitled **Analytical Approaches for Receptor Biology** to bring together in an informal setting workers and students in this field. The major aim of the conference is to foster a critical and multidisciplinary analysis of those concepts, both biological and methodological, that form the foundation of current receptor research.

PROGRAM AND SESSION TOPICS

Sunday Evening, August 25

REGISTRATION AND DINNER.

Monday, August 26

STRUCTURAL ANALYSIS OF RECEPTORS

Chairperson: *Michael Raftery*
California Institute of Technology

A discussion of: (a) evolutionary relationships between receptors of similar and different types with respect to ligand recognition and mechanism of action; (b) structural models for receptor polypeptide folding patterns and interaction with the plasma membrane; (c) current thought regarding ion-channel structures and their control mediated by receptor-ligand interaction.

Speakers to be confirmed.

RECONSTITUTION OF RECEPTORS

Chairperson: *Ari Helenius*
Yale University School of Medicine

The session on reconstitution of receptors will focus on a variety of methods for introducing isolated membrane proteins into vesicular and planar bilayer membranes, and on methods available to monitor their activities, orientation, lateral distribution and other characteristics in the artificial environment. Proteins of differing degree of complexity will be covered ranging from simple membrane antigens to voltage dependent ion channels. The emphasis will be methodological with extensive discussion on limitations, pitfalls and future prospects of reconstitution as an approach in receptor biology

Reconstitution in the Study of Electrical Exitability. *William Agnew*, Yale School of Medicine.

Functional Reconstitution of Purified Receptors and Channel Proteins in Planar Lipid Bilayers. *Mauricio Montal*, University of California.

Kinetic Factors in Vesicle Formation and Reconstitution. *Jacqueline Reynolds*, Duke University Medical Center.

Tuesday, August 27

PROTEIN/PROTEIN INTERACTIONS INVOLVING MEMBRANE PROTEINS

Chairperson: *Henry Metzger*
NIH/NIADDK

The interaction of membrane proteins with other proteins is important in several cellular phenomena. One of these is in signal transduction: interaction of a ligand with a receptor on the surface of the cell leads to a biochemical perturbation in the interior of the cell because the liganded receptor interacts with other membrane-bound or cytoplasmic proteins. A second phenomenon — in some cases related to the first — is the interaction of proteins that leads to membrane protein internalization, cycling, down regulation, etc. Cytoskeletal structures have been implicated in such phenomena. A third phenomenon involves transport of proteins from one portion of a cell into or across the cell. This session will consider analytical methods useful for investigating such interactions. An important aspect to be considered also is the intramembrane milieu. An understanding of the role of the high protein concentration, preorientation of molecules, type and concentration of lipid are among the essential features that must be appreciated to work successfully with such interactive systems.

The Receptor for Immunoglobulin E and its Stimulation of Calcium Channels and Phosphatidyl Inositol Turnover. *Henry Metzger*, NIH/NIADDK.

Interactions at the Cytoskeletal-Membrane Interface. *Jon Morrow*, Yale University Medical School.

The Beta-Adrenergic Receptor and its Stimulation of Adenyl Cyclase. *Michael Schramm*, Hebrew University, Jerusalem, Israel.

RECEPTOR DYNAMICS I. SUBCELLULAR PATHWAYS

Chairperson: *Ira Mellman*
Yale University School of Medicine

This session will be concerned with the intracellular organelles involved in the endocytosis and recycling of receptors. Speakers will address such topics as: the role of acidic endocytic vesicle pH in controlling the transport of receptors and their ligands; the subcellular distribution of acidic organelles; the structure, function, and isolation of endosomes; biochemical analysis of endosomes; possible transport mechanisms of organelles and receptors; use of molecular genetics and immunocytochemistry to study receptor traffic.

See reverse side for listed speakers.

Recent Studies on the Receptor Mediated Endocytosis of LDL. *Richard G. W. Anderson*, University of Texas Health Science Center.

Structure and Function of Endosomes. *Mark Marsh*, Chester Beatty Institute, London, U.K.

Third speaker to be confirmed.

Wednesday, August 28, 1985

RECEPTOR DYNAMICS II. BIOCHEMISTRY

Chairperson: *Richard Klausner*
NIH/NIADDK

The session on the biochemical events associated with receptor movement will focus on two issues: 1) The role of covalent modifications such as receptor phosphorylation on the internalization and intracellular fate of different receptor molecules. 2) Biochemical methods for studying receptor movement.

Occupancy Signals and the Fate of the Transferrin Receptor. *Joe Harford*, NIH.

Studies of the EGF Receptor. *Joseph Schlessinger*, Weizman Institute of Science.

Receptor Movement and Phosphorylation in Adrenergic Receptor Desensitization. *David Sibley*, Duke Medical Center.

SIGNAL TRANSDUCTION I. ENZYME FUNCTIONS

Chairperson: *Michael Czech*
University of Massachusetts Medical School

This session will focus upon mechanisms involved in cellular signaling by growth factor receptors. Emphasis will be placed on receptors that express intrinsic tyrosine kinase activity such as the insulin, IGF-1, EGF, and PDGF receptors. These receptor systems will be discussed in relation to receptor structure, enzymology, and biological function. Molecular cloning and sequence analysis of the receptors for EGF and insulin will be treated in some detail. Molecular mechanisms of receptor-receptor interactions which lead to modulations of both receptor binding and tyrosine kinase activities will also be discussed in detail. Recent information suggests that at least one of the tyrosine kinase receptors, the PDGF receptor, might act through modulation of the phosphatidyl inositol cycle. Thus, one presentation in this session will be devoted toward the latest developments in our understanding of the generation and action of inositol-3-phosphate and diacylglycerol. It is hoped that this presentation will catalyze further discussion about possible molecular linkages between tyrosine kinase activity and modulation of phospholipid turnover. In addition, our session will also contain a presentation of the latest developments in the field of transforming growth factor receptors. Possible similarities and differences between these receptors and those for the growth factors will be emphasized at the molecular level. The overall objective of this session is to present and discuss the most recent concepts of receptor signaling.

Receptor Kinases and Their Regulation. *Michael P. Czech*, University of Massachusetts Medical School.

Receptors for the Transforming Growth Factors. *Joan Massague*, University of Massachusetts Medical School.

Formation and Actions of Inositol Phosphates. *James W. Putney*, Medical College of Virginia.

Molecular Biology of Receptor Kinases. *Axel Ullrich*, Genentech, Inc.

Thursday, August 29

SIGNAL TRANSDUCTION II. TRANSPORT FUNCTIONS

Chairperson: *Charles Stevens*
Yale University School of Medicine

This session focuses on two important classes among the transport proteins: the cotransport systems and the channels. Cotransport systems use a transmembrane concentration gradient of one species to drive the transport of another, and thus spend the energy stored in one concentration gradient to create another one. Channels sense extracellular ligands or transmembrane voltage and, through a protein conformational change, open a pore that permits one or several types of ions to pass through; this ion flux is used for signaling. We will discuss modern molecular biological and biochemical methods for studying these proteins and how they work.

Locating Functional Sites for Agonists and Antagonists of the Acetylcholine Receptor. *Arthur Karlin*, Columbia University College of Physicians and Surgeons.

LAC Permease from *E. coli*: Studies of a Biological Energy Transducer. *H. Ronald Kaback*, Roche Institute of Molecular Biology.

Transport Functions. *Charles Stevens*, Yale University School of Medicine.

POSTERS — Participants will have the opportunity to present posters during the conference.

The 1985 ASCB Summer Conference will be made possible by an original grant from Smith Kline & French Laboratories. Further contributions have been received from: Bristol-Myers Company; The Council for Tobacco Research-USA, Inc.; Hoffman-LaRoche, Inc.; Monsanto Company; Sandoz Research Institute, Inc.; and Stuart Pharmaceuticals. The Society is most appreciative for this generous support.

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* * * APPLICATION * * *

August 25-29, 1985
Airlie House Conference Center
Airlie, Virginia

NAME: **(Please Print)** _____

INSTITUTION: _____

DEPARTMENT: _____ PHONE: _____

STREET: _____

CITY: _____ STATE: _____ ZIP: _____

SOCIETY AFFILIATION: ASCB ☐ APS ☐ AAP ☐ ASPET ☐
ASBC ☐ AIN ☐ AAI ☐ NON-MEMBER ☐

Do you wish to present a poster? yes ☐ no ☐

Indicate below your particular activities which justify favorable consideration of you as a participant in and contributor to this conference. Participants will be chosen by a Selection Committee on the basis of the information provided on this application.

Some funds are available for students and postdoctoral fellows.
Please indicate: I am a student? ☐ postdoctoral fellow? ☐ and I will ☐ will not ☐ require financial assistance to attend the conference.

CONFERENCE COST — A fee of approximately $300 per person, double occupancy, will be required of participants. This fee will cover meeting registration, room and board for the duration of the meeting. A limited number of single rooms will be available for a surcharge of $40. (Receipt of Applications will NOT be acknowledged.)

DO NOT SEND ANY MONEY WITH THIS APPLICATION

THE DEADLINE FOR SUBMISSION OF APPLICATIONS WILL BE APRIL 15, 1985.
MAIL APPLICATIONS FOR CONSIDERATION TO:

ASCB Summer Research Conference
ASCB National Office
9650 Rockville Pike
Bethesda, MD 20814
(301) 530-7153

Attendance will be limited to 120 persons. All applicants will be notified of the Conference Committee's decision by May 15, 1985.

FUTURE SUMMER RESEARCH CONFERENCES

The Education Committee is soliciting suggestions and specific proposals for summer research conferences to be sponsored by the Society in 1986 and later years. Proposals are encouraged for conferences that address important current areas of research in cell biology not now adequately covered by similar meetings. Preference will be given to conferences that are interdisciplinary, within the areas of interests of the Society membership, and that critically evaluate important recent results and methods that might be profitably exploited by other researchers in the area. We particularly wish to encourage one-time meetings where recent developments in an area suggest bringing together a group of people who do not normally meet, will be profitable to all. It would be expected that conferences would be of two to five days duration, would be limited to 100-200 participants, and otherwise would follow the same general format of the 1985 conference on Receptor Biology. ***Partial funding will be provided by a generous grant from Smith, Kline &French Laboratories.*** Individuals who are interested in organizing a specific conference should submit a preliminary letter that indicates: (a) the topic of the proposed conference; (b) a statement of purpose that summarizes the significance and potential appeal of the conference; and (c) an outline of tentative subjects for the scientific program. Letters should be addressed to **Richard Rodewald, ASCB Summer Conference Committee, ASCB National Office, 9650 Rockville Pike, Bethesda, MD 20814. Specific proposals for the 1986 conference should be received by March 30, 1985.**

THE TWENTY-FIFTH ANNUAL MEETING

OF

THE AMERICAN SOCIETY FOR CELL BIOLOGY

is to be held in

Atlanta, Georgia

November 18-22, 1985